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FEDERAL COMMUNICATIONS COMMISSION
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Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 2 and 25 of the	)	
Commission's Rules to Permit Operation	)	ET Docket No. 98-206
of NGSO FSS Systems Co-Frequency with	)	RM-9147
GSO and Terrestrial Systems in the Ku-Band;	)	RM-9245
	)	
Amendment of the Commission's Rules to	)	
Authorize Subsidiary Terrestrial Use of the	)	
12.2-12.7 GHz Band by Direct Broadcast	)	
Satellite Licensees and Their Affiliates;	)	
	)	
Applications of Broadwave, USA,	)	
PDC Broadband Corporation, and	)	
Satellite Receivers, Ltd. To Provide	)	
A Fixed Service in the 12.2-12.7 GHz Band	)	

REPLY COMMENTS OF SKYBRIDGE

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SUMMARY

The proposals set out in the Further Notice, ostensibly to permit co-frequency sharing in the 12.2-12.7 GHz band between, inter alia, NGSO FSS systems and recently-defined MVDDS systems, are based on false assumptions, are fraught with factual and regulatory inconsistencies, and utterly fail to define a workable sharing regime consistent with the Commission's assignment of co-primary status to these services. The result is grossly discriminatory in favor of MVDDS systems, and is inconsistent with the strict standards and burdens of technical proof with which the Commission has historically regulated this band.

The comments of all three of the current MVDDS applicants essentially ignored the requirement to share with NGSO FSS. Northpoint goes so far as to suggest that all sharing issues have been successfully resolved, a claim which Northpoint knows is not true. Equally egregious, Northpoint now appears to have abandoned its oft-repeated assurances regarding its operating parameters, assurances that have been relied on in all sharing analysis conducted to date. It is now clear, for example, that the transmitter power Northpoint has long characterized as "typical" will be routinely exceeded. Northpoint's backtracking has also put into question its need for protection from satellite emissions in excess of that already provided under international regulations.

Moreover, a number of potential new applicants introduced a variety of new proposals for use of the band for MVDDS services, none of which have been the subject of any study whatsoever. It is now proposed, for example, that MVDDS transmitters not necessarily point south, that two-way services be accommodated, and that stratospheric platforms be permitted.

For these reasons, the comments strongly support the fundamental point made in SkyBridge's comments in this proceeding: The Commission must develop a carefully-defined sharing regime for the band that takes into account the legitimate protection requirements of *both* services, and *equitably* spreads the sharing burden among them, without imposing unnecessary or debilitating constraints on either service. In the absence of strict rules that will ensure this result, the Commission's ostensibly co-primary allocation will be an abject failure, which would undermine the international commitments that the Commission worked for years to achieve.

Furthermore, in its comments, Northpoint continued to press a series of wholly unsupported legal arguments concocted to allow it to gain access to the 12.2-12.7 GHz band by means that have repeatedly and definitively been shown by numerous parties to this proceeding to be in gross violation of Commission licensing rules and policy, and flatly inconsistent with the overall public interest. In short, there is no legal, factual or policy predicate to support Northpoint's claim that its MVDDS applications (and the associated allocation and regulations) must be tied, procedurally and chronologically, to the pending applications (and associated allocation and regulations) for NGSO FSS system licensees. In addition, neither the ORBIT Act nor the Commission's November 1998 Public Notice establishing a cut-off date for Ku-band NGSO FSS applications in any way prevents the Commission from seeking additional MVDDS applications, and if need be, awarding them by auction. Finally, there is no basis for Northpoint's claim that the Satellite Home Viewer Improvement Act in any way compels the Commission to immediately award licenses to Northpoint.

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REPLY COMMENTS OF SKYBRIDGE

SkyBridge L.L.C. ("SkyBridge"), by its attorneys, hereby replies to various comments filed on March 12, 2001, in response to the Commission's Further Notice of Proposed Rulemaking in the above-captioned proceeding.[1]

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[1] First Report and Order and Further Notice of Proposed Rulemaking, FCC 00-418, released December 8, 2000. Herein, the Further Notice of Proposed Rulemaking will be denoted "Further Notice" or "FNPRM." The First Report and Order will be denoted "Report & Order" or "R&O." In addition to the comments filed by SkyBridge (the "SkyBridge Comments"), comments discussed herein were filed by The Boeing Company (the "Boeing Comments"), Virtual Geosatellite, LLC (the "Virtual Geo Comments"), Northpoint Technology, Ltd. and Broadwave USA, Inc. (the "Northpoint Comments"), Pegasus Broadband Corporation (the "Pegasus Comments"), Satellite Receivers, Ltd. (the "Satellite Receivers Comments"), AT&T Corp. (the "AT&T Comments"), DirecTV, Inc. (the "DirecTV Comments"), EchoStar Satellite Corporation (the "EchoStar Comments"), The Satellite Broadcasting and Communications Association (the "SBCA Comments"), The National Rural Telecommunications Cooperative (the "NRTC Comments"), MDS America,

I. INTRODUCTION

In its initial comments in response to the Further Notice, SkyBridge demonstrated that the proposals set out in the Further Notice, ostensibly to permit co-frequency sharing in the 12.2-12.7 GHz band between, inter alia, non-geostationary satellite orbit ("NGSO") Fixed-Satellite Service ("FSS") systems and recently-defined Multichannel Video Distribution and Data Service ("MVDDS") systems, utterly fail to define a workable sharing regime consistent with the Commission's assignment of co-primary status to these services.[2] The comments of other parties in this proceeding do nothing more than confirm the accuracy of SkyBridge's conclusion.

Northpoint, for example, devoted less than three pages of its voluminous pleading to issues related to sharing between MVDDS and co-primary NGSO FSS systems, and did not discuss any protection requirements for NGSO FSS systems.[3]

Incorporated (the "MDS Comments"), and SkyTower, Inc. (the "SkyTower Comments").

[2] On March 19, 2001, SkyBridge filed a Petition for Reconsideration in the instant proceeding, demonstrating, inter alia, that the Commission's decision to permit MVDDS systems into the 12.2-12.7 GHz band was a per se violation of the Administrative Procedure Act. See SkyBridge Petition for Reconsideration, ET Docket No. 98-206, RM-9147, RM-9245, filed March 19, 2001 (the "SkyBridge Petition"), at 2. The following discussion assumes arguendo that the Commission can remedy both the abject procedural flaws in its prior decision, as well as identify a rational technical basis – which, to date, it has not done – for affording MVDDS systems co-primary status with NGSO FSS systems.

[3] Northpoint Comments, Technical Appendix, at 26-28. This is consistent with Northpoint's general approach to sharing; in Northpoint's view, the entire burden of its entry into the 12.2-12.7 GHz band should be borne by others. For example, as explained in the SkyBridge Comments, at 4, more than 6 months ago, SkyBridge submitted a detailed outline of a regulatory framework under which it believes that its NGSO FSS system and the Northpoint system could operate on a co-frequency basis, based on its understanding of the Northpoint system and the overall interference environment in the band. See *Ex Parte* Communication of SkyBridge, ET Docket

Pegasus as well failed to address MVDDS/NGSO FSS sharing.[4] And the third MVDDS applicant, Satellite Receivers, did not even mention the need to share with NGSO FSS systems. Other than Boeing, all parties essentially ignored the protection requirements of co-primary NGSO FSS systems.[5]

Even worse, at numerous points in its comments, Northpoint claims that it has solved all MVDSS/NGSO FSS sharing issues. In particular, Northpoint cites its negotiations with DBS and NGSO FSS operators on sharing rules, creating the entirely misleading impression that they have been successful.[6] As demonstrated by numerous

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No. 98-206, July 10, 2000 (the "SkyBridge Proposal"). Northpoint dismissed the SkyBridge proposal out of hand, with no technical analysis. See infra note 18.

4 Indeed, Pegasus appears to be unfamiliar with many aspects of the sharing debates that have taken place to date. Without any support -- and completely at odds with the record -- Pegasus concludes that NGSO FSS user terminal "are readily able to avoid interference from MVDDS transmitters." Pegasus Comments at 14. As SkyBridge has exhaustively demonstrated on numerous occasions, this is not the case. See, e.g., SkyBridge Comments at 10. In addition, Pegasus seems to believe that the PFD limits proposed by the Commission to protect MVDDS services were developed to protect DBS services, which is incorrect, and also that NGSO FSS operators have agreed to these limits, which is likewise incorrect. Pegasus Comments at 18. Moreover, Pegasus erroneously states that the Commission's proposals for MVDDS/DBS sharing have been developed by the ITU-R in the context of limiting interference between DBS and NGSO FSS systems. As explained in the SkyBridge Comments, the ITU-R studies did not address MVDDS-type systems. See SkyBridge Comments at 7.

5 Boeing's detailed assessment concluded that, while the SkyBridge Proposal would still result in sizable exclusion zones in Boeing's coverage areas, the proposal "would give all NGSO FSS networks substantially more interference protection than would be provided under the illusory regulatory regime for MVDDS licensees that is proposed in the Further Notice." Boeing Comments at 3.

6 See, e.g., Northpoint Comments at 2, 3, 6, 12, 16, 17 19 ("Northpoint and the satellite operators seeking authorization to use this spectrum have already gone through a lengthy process to work out co-primary sharing criteria with NGSO-FSS operators and to ensure that there will be no harmful interference with DBS broadcasts. It would be unsound to render that process a nullity . . . " Id. at 16. "Only Northpoint

parties in this proceeding, they have not. SkyBridge has repeatedly made the point that, once a viable sharing regime has been established for NGSO FSS and MVDDS -- one in which both services equitably share the burden of minimizing interference into the other -- it has no objection to the introduction of MVDDS systems into the 12.2-12.7 GHz band. To date, however, this has not occurred, despite SkyBridge's best efforts. It is particularly objectionable -- indeed, it borders on intentional misrepresentation -- for Northpoint to repeatedly claim otherwise, when it knows full well that its claim is flatly untrue.[7]

Finally, various commentors introduced a number of new, very diverse proposals for use of the MVDDS allocation, illustrating just how carefully the Commission must craft and define the sharing rules in the band. At least two parties -- Northpoint and MDS -- now claim that there is no need to require MVDDS transmitters to point in a southerly direction,[8] a requirement that has always constituted a fundamental assumption in the debate regarding interference generated by MVDDS systems. Additionally, AT&T now proposes methods for permitting two-way MVDDS services,[9] introducing a sharing scenario that has not been considered even in the abstract, let alone

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negotiated with IB and with DBS and NGSO-FSS operators to ensure that satellite use of the spectrum would not foreclose terrestrial operation." Id. at 17.)

[7] This is not the first time that Northpoint's rhetoric has run afoul of reality regarding the success of its discussions with various NGSO FSS applicants. See, e.g., Letter to Magalie Roman Salas, Secretary, from Jeffrey H. Olson, attorney to SkyBridge, dated September 8, 2000.

[8] Northpoint Comments at 25; MDS Comments at 8, 12.

[9] AT&T Comments at 12.

studied in a technically rigorous way. And SkyTower proposes use of stratospheric aircraft as a Fixed Service application.[10]

In sum, the comments strongly support the fundamental point made in the SkyBridge Comments: The Commission must develop a carefully-defined sharing regime for the band that takes into account the legitimate protection requirements of *both* services, and *equitably* spreads the sharing burden among them, without imposing unnecessary or debilitating constraints on either service. In the absence of strict rules that will ensure this result, the Commission's ostensibly co-primary allocation will be an abject failure, which would undermine the international commitments that the Commission worked for three years to achieve.[11]

SkyBridge therefore urges the Commission to carefully consider the technical proposals first presented over six months ago in the SkyBridge Proposal, and discussed in detail in the SkyBridge Comments. No party has ever challenged those proposals on any rational technical or policy basis, and SkyBridge need not repeat these proposals here. Below, SkyBridge addresses a few specific points raised in the various comments in this proceeding that relate to NGSO FSS/MVDDS sharing.

II. RULES FOR PROTECTION OF NGSO FSS

A. Ensuring Co-Primary Status

As explained in detail in the SkyBridge Comments, the Commission's sharing rules must prescribe operational limitations that ensure that both NGSO FSS and MVDDS systems may equitably share the spectrum, no matter which individual systems

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[10] SkyTower Comments at 2.

[11] See SkyBridge Comments at 7-11.

are deployed first. To do otherwise would be inconsistent with the co-primary status of these services.[12]

In particular, failure to prescribe adequate operational constraints would leave significant interference conflicts to be resolved on an ad hoc basis. As noted by numerous parties, this can prove disastrous to the service receiving the interference.[13] A viable technical solution for co-frequency operation should not require modifying subscriber equipment, and, in particular, should not involve one operator (the one causing the problem) making decisions regarding modifying the user terminals of the victim operator at the latter's customer's premises.[14] As noted by Pegasus, large shields or large or peculiar-looking antennas will be aesthetically unacceptable to many consumers.[15] And moving the antenna to another location means moving the antenna to a location not favored by the customer, and adding more holes to the customer's residence.[16] In sum, the Commission's sharing rules must seek to solve, to the greatest extent possible,

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[12] See also Boeing Comments at 18-22.

[13] EchoStar Comments at iv, 9, 17-20; Pegasus Comments at 3, 10; DirecTV Comments 15.

[14] EchoStar Comments at 17-20; DirecTV Comments at 15.

[15] Moreover, as opposed to DBS receivers, NGSO FSS user terminals, which employ tracking beams, will be quite specialized, and it will not be the case that a terminal can be easily modified or that one with a slightly larger gain can simply be taken from the shelf.

[16] Pegasus Comments, Technical Supplement at 7. Although Pegasus persuasively makes these arguments, it should be noted that Pegasus's only proposal to protect NGSO FSS user terminals from MVDDS interference is "a shield obstructing the path to the MVDDS transmitter, or a better antenna." Pegasus Comments, Technical Supplement at 18. As discussed above, Pegasus has not made any serious attempt to understand, and provide protection for, co-primary NGSO FSS systems.

sharing conflicts *in advance of* system implementation, to avoid irreparable harm to any of these consumer services.[17]

B. EPFD Limits

The SkyBridge Proposal advocated adoption of equivalent power-flux density ("EPFD") limits on MVDDS systems in order to adequately protect NGSO FSS systems, while providing MVDDS systems as much operational flexibility as possible. Although Northpoint had earlier summarily rejected the SkyBridge Proposal without explanation,[18] Northpoint now agrees that EPFD limits are the preferred approach for governing MVDDS sharing with ubiquitous satellite receivers.[19] They are "based on the level of interference actually present at a given receiver" and "take into account the operating environment including the receive antenna gain characteristics,"[20] and "they can be measured in the field."[21] SkyBridge therefore urges the Commission to employ EPFD limits for the protection of NGSO FSS systems, as described in detail in the SkyBridge Comments.[22]

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[17] See, e.g., Pegasus Comments, Technical Supplement at 2.

[18] Northpoint's only response to the SkyBridge Proposal was a 2-page letter that made the entirely unsupported claim that the power limits proposed by SkyBridge "would not permit the effective functioning of Northpoint's system and therefore are completely unacceptable to Northpoint." Letter from David H. Pawlick, Counsel to Northpoint Technology Ltd., to Magalie Roman Salas, July 11, 2000. This response, filed one day after the SkyBridge Proposal, does not even identify, let alone demonstrate, any constraint on the Northpoint system caused by the SkyBridge Proposal.

[19] Northpoint Comments at 33; see also DirecTV Comments at 18.

[20] Northpoint Comments, Technical Appendix at 5.

[21] Id. and Northpoint Comments at 33.

[22] SkyBridge has advocated a combination of both "operational" and "validation" EPFD limits for protection of NGSO FSS systems from MVDDS transmitters. The

However, while Northpoint agrees with the importance of EPFD limits for protection of satellite receivers, Northpoint has apparently given little thought as to how they should be developed for the protection of NGSO FSS systems. Without addressing the technical concerns raised in the SkyBridge Proposal in any way, Northpoint concludes "the Northpoint EPFD limits to protect DBS will also provide sufficient protection to NGSO FSS."[23] As SkyBridge has explained in detail in numerous prior filings,[24] Northpoint's assertion is absurd on its face. Not only are the protection requirements of DBS and NGSO FSS systems very different, but, even more importantly, the mechanisms of interference from MVDDS transmitters into DBS and NGSO FSS receivers are quite distinct.[25]

In brief, because MVDDS transmissions are directed south, and NGSO FSS receivers are often directed to satellites in the north (in the U.S.) to avoid in-line

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operational limits are the only way to take into account the operational interference environment, while the validation limits can be taken into consideration by the MVDDS operator at the design stage. See, e.g., SkyBridge Comments at 33-43. In the FNPRM, the Commission rejected use of EPFD limits as impractical, without, however, citing any support in the record for such a conclusion. FNPRM, ¶ 280. Because all affected parties now agree that EPFD limits are the preferred method for regulating sharing, SkyBridge urges the Commission to reconsider its position.

[23] Northpoint Comments, Technical Annex, at 27. The other two MVDDS applicants, Pegasus and Satellite Receivers, similarly dismissed the protection needs of NGSO FSS systems. See supra note 4 and accompanying text.

[24] See, e.g., SkyBridge Comments at 22.

[25] Indeed, that Northpoint could even make such a claim -- after the countless hours of in-depth technical discussions its engineers have engaged in with SkyBridge's engineers -- demonstrates an astonishing indifference for undisputed technical facts. At this late stage, Northpoint knows full well that its technical claims vis-a-vis NGSO systems are grossly inaccurate and misleading. Northpoint's conduct in this regard is consistent with its equally startling and baseless implications, discussed supra, that it has successfully negotiated a mutually acceptable framework for co-existence with the International Bureau and the DBS and NGSO FSS communities.

events with DBS systems, NGSO FSS receivers tend to point toward MVDDS transmitters, thus receiving greater interference levels than GSO receivers pointed south. NGSO FSS user terminals located near MVDDS transmitters will therefore be precluded from using the 12.2-12.7 GHz band due to MVDDS interference. To permit continuous service to customers, the lower half of the 11.7-12.7 GHz band will have to be used by these user terminals. However, this use of "frequency diversity" is only possible if strict limits are placed on MVDDS emissions to ensure that: (1) the number of user terminals that receive interference from MVDDS transmissions is small; (2) the RF front-ends of the affected user terminals are not saturated; and (3) the out-of-band emissions in the 11.7-12.2 GHz band from the MVDDS operations are sufficiently low to permit unconstrained NGSO FSS operations in that band.[26]

Northpoint fails to even mention these important considerations. Moreover, the EPFD limits Northpoint proposes for the protection of DBS systems would not address these concerns. First, the EPFD limits are given as a range of values that varies by region within the U.S. based on *DBS link performance*. NGSO FSS link performance does not vary in this way, and therefore the resulting PFD levels into NGSO FSS receivers would not correspond to NGSO FSS protection requirements.

Even worse, the Northpoint limits do not apply over the entire area over which NGSO FSS user terminals may be placed. They can be exceeded in a DBS "mitigation zone" surrounding each MVDDS transmitter.

For both of these reasons, the EPFD limits do not provide any indication of the size and shape of the "Red Zone" in which NGSO FSS user terminals will be

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[26] SkyBridge Comments at 26-29.

forced to implement frequency diversity. Furthermore, the Northpoint proposal leaves a zone in which no limit whatsoever would govern MVDDS emissions, and in which no NGSO FSS user terminal could likely be placed due to the threat of saturation. In brief, the proposed rules provide no specific or remotely adequate protection for NGSO FSS systems, which would be left with no recourse in the event of harmful interference from MVDDS systems.

Finally, Northpoint proposes no mean whatsoever for assessing compliance with these limits. While SkyBridge does not believe that such assessment need be particularly burdensome for either party, rules must be in place to provide NGSO FSS operators some assurance that the MVDDS systems have been designed and built to meet the limits, and that procedures will be in place to rectify any violations. In addition, these procedures must provide NGSO FSS operators with the boundaries of the "Red Zones" within which NGSO FSS operators will need to implement frequency diversity. In the SkyBridge Comments, SkyBridge proposed simple compliance tools, and it urges the Commission to adopt them.

One additional point raised by Northpoint in its comments must be addressed. Northpoint opposes the Commission's proposal of a 12.5 dBm EIRP limit on MVDDS transmitters, claiming that "it would lead to a 50% increase in the number of Northpoint transmitters in urban areas."[27] Throughout this proceeding, Northpoint consistently has characterized 12.5 dBm as its "typical" transmitter power. Northpoint now apparently believes that 12.5 dBm will, in reality, be atypical; at most, perhaps, half of its transmitters will operate at that power (or perhaps lower), and about half will have

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[27] Northpoint Comments at 26.

an unspecified higher power. Indeed, Northpoint unambiguously states that this, in fact, was the case in its "conceptual deployment scenario" for Washington, D.C., where 12 out of 25 transmitters had an EIRP greater than 12.5 dBm, despite the fact that the tests which Northpoint touts as proving its noninterference claims were conducted at the 12.5 dBm power level.[28]

Northpoint's conduct in this regard is unconscionable. In one sense, it is helpful that Northpoint has, at the eleventh hour, acknowledged that the power levels it previously tried to persuade the Commission and interested parties to believe would represent its "typical" system will be routinely exceeded. Obviously, this "candor" was inspired by Northpoint's fear that it might actually be required to operate in the manner it previously had intentionally and repeatedly implied would generally be acceptable to it.[29] As SkyBridge has pointed out from the inception of this debate, NGSO FSS operators cannot rely on protection that has been developed for the "typical" operations of MVDDS systems, any more than GSO FSS and DBS operators would have been satisfied by relying on "typical" NGSO FSS power levels to define the relevant limits for those services. Northpoint has now proven SkyBridge's case.

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[28] Northpoint Comments, Technical Appendix at 26, n.52.

[29] The only exceptions that have been cited by Northpoint in the past are what it has characterized as very rare cases in which satellite receivers would not be harmed by Northpoint's use of a higher power, because, for example, the Northpoint transmitter was placed on the far shore of a body of water, pointing across an area in which no satellite receivers could be located. Another example of an unusual deployment scenario cited by Northpoint would be a Mt. Wilson transmitter site for serving the Los Angeles basin.

C. Disaggregation of Spectrum

While Northpoint has steadfastly maintained that its system would require the entire 500 MHz at issue here, some parties have now proposed that the Commission divide the spectrum to accommodate multiple entrants.[30] Such action could have drastic consequences for NGSO FSS systems.[31] As noted above, even with the power limits advocated in the SkyBridge proposal, surrounding every MVDDS transmitter there will be a zone in which NGSO FSS user terminals will not be able to operate in the 12.2-12.7 GHz band. It is critical to the operational efficiency of NGSO FSS systems that the number of user terminals so affected is kept very small.

Dividing the spectrum could dramatically increase the number of transmitters, and hence "Red Zones," and could thereby increase the complexity of sharing. While a transmitter collocation requirement, as proposed by Boeing,[32] could ameliorate this problem, such an approach assumes the deployment of technically-similar MVDDS systems. For systems employing service areas of significantly different sizes, for example, such an approach would not work. SkyBridge urges the Commission to ensure that its rules as a whole (EPFD limits and licensing rules) ensure that the number and size of Red Zones will both be sufficiently small. Rules that would significantly increase the number of Red Zones, such as dividing the spectrum among applicants, or

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[30] See, e.g., Pegasus Comments at 15 ("Pegasus proposes licensing of four, 125 MHz blocks."); MDS Comments at 14.

[31] The Commission itself noted that permitting disaggregation of the spectrum could complicate the interference environment. FNPRM, ¶ 306; see also AT&T Comments at 16.

[32] Boeing Comments at 37-38.

permitting licensees to disaggregate the spectrum, may require reassessment of the EPFD limits in order to decrease the size of those zones.

III. RULES FOR PROTECTION OF MVDDS

As discussed in the SkyBridge FNPRM Comments, no MVDDS proponent has ever provided any rigorous technical basis for the PFD limits proposed by the Commission in the Further Notice, which are up to 10 dB tighter at low elevation angles than the Article S21 limits that apply internationally in the band for the protection of terrestrial services. None of the MVDDS proponents provides any additional illumination in the most recent comment round.

In fact, the Northpoint Comments cast substantial doubt on the need for this tightening. Northpoint opposes the Commission's proposal for a minimum antenna gain for MVDDS receivers of 34 dBi,[33] which suggests that Northpoint may use smaller dishes than previously proposed.[34] If this is the case, the PFD the receivers can tolerate is greater than Northpoint earlier claimed, because a lower antenna gain would result in less interference from NGSO FSS satellites into Northpoint user terminals.[35] In any case, the

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[33] Northpoint Comments, Technical Appendix at 25.

[34] For example, in its NPRM comments in this proceeding, filed March 2, 1999 (the "Northpoint NPRM Comments"), in the Technical Annex at 3, Northpoint provides its range of "receive antenna gain" as between 34 and 38 dBi, with a "typical" gain of 34 dBi. Moreover, all of the PFD calculations it has submitted have been performed using a 34 dBi antenna gain. See Northpoint NPRM Comments, Technical Annex at 26, Table 15.

[35] The interference from NGSO FSS systems into MVDDS receivers is statistical. The short term (maximum) interference levels depend on the MVDDS antenna gain. When the antenna gain decreases, the short term interference decreases. Northpoint has performed two kinds of calculations to assess satellite interference into its system: a static analysis and a dynamic analysis. The static analysis was based on only the short term protection criteria. See Northpoint NPRM Comments, Technical Annex, at 22, Figure 14. And in the dynamic analysis, it is clear that the short term

Northpoint Comments show once again the lack of any clear nexus between the PFD limits that Northpoint and the Commission have proposed and the legitimate needs of MVDDS systems.

For these reasons, the proposal to tighten the S21 limits should be rejected; there is no basis in the record for concluding that the S21 limits would not adequately protect properly-designed MVDDS systems. Nonetheless, SkyBridge remains willing to accept at face value Northpoint's claimed need of some measure of additional protection, and has proposed rules that would require NGSO FSS compliance with such limits *on an operational basis*. In view of the very substantial burdens these limits pose for NGSO FSS systems,[36] the Commission should apply these tighter limits, if at all, *on an operational basis* only.[37]

IV. RULES FOR PROTECTION OF DBS

SkyBridge has refrained from commenting on DBS/MVDDS sharing issues, except where specific proposals impact NGSO FSS operations. This is the case here, where DirecTV and EchoStar urge in their comments that the combination of all MVDDS and NGSO FSS systems should fall within the ITU-R recommendation that

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interference is the most critical to Northpoint. Id. at 25, Figure 18. On this basis, Northpoint requested the 10 dB of additional protection "to prevent loss of synchronization." Id. at 26. Therefore, if Northpoint is going to use antennas having a gain lower than 34 dBi, its own analysis indicates that it does not need 10 dB of additional protection.

[36] SkyBridge Comments at 29-32.

[37] Virtual Geo also makes a proposal regarding the PFD limits, claiming that systems that do not operate below a 5 degree elevation angle should be exempt from the limits. Virtual Geo Comments at 3. Since SkyBridge operates at a minimum elevation angle of 10 degrees for the user terminals that will operate in the 12.2-12.7 GHz band, SkyBridge would obviously have no difficulty itself with this proposal.

interference from other systems should cause no more than a 10% increase in the unavailability of any DBS system.[38] If adopted, this proposal would overturn the delicate international consensus (which the U.S. was instrumental in creating) and related domestic decisions, developed over three years of detailed study. As the Commission knows, the EPFD limits applicable to NGSO FSS systems adopted internationally at WRC-2000, and by the Commission in the Report & Order, were based on both this 10% criteria and critical assumptions regarding how NGSO FSS systems would contribute, in the aggregate, to this threshold. Throwing MVDDS-generated interference into this delicate balance would completely undermine the fundamental bases for the WRC-2000 agreement. Moreover, this proposal is inconsistent with the general NGSO-NSGO sharing approach adopted in the Report & Order, pursuant to which NGSO FSS systems will be required to coordinate their operations to ensure compliance with the aggregate limits the Commission adopted in Part 25. This process will be significantly more complicated if MVDDS transmissions are considered to be covered by this aggregate.[39]

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[38] DirecTV Comments at 8-11; EchoStar Comments at 10-16.

[39] Northpoint's attempt to claim some portion of the 10% criteria for itself is completely inappropriate. As SkyBridge has demonstrated on numerous occasions, Northpoint prefers to pick and choose isolated aspects of critical and sensitive international agreements that may be beneficial to it, while ignoring the agreements as a whole. See, e.g., SkyBridge Comments, at 16, n.31. As yet another example of this behavior, in its comments Northpoint cites to the database of DBS link compiled by the ITU-R to permit studies of NGSO FSS/DBS sharing. See Northpoint Comments, Technical Appendix at 14. In discussing this database, Northpoint speaks of the "average" impact of MVDDS operations on U.S. DBS links, as if such averages were pertinent to MVDDS/DBS sharing. First, Northpoint proposes to adapt its emissions to local DBS link conditions, an approach that was not appropriate in the NGSO FSS/DBS case, and which renders U.S.-wide averages irrelevant. More importantly, the ITU-R database was compiled to include those links *most sensitive to the short-term interference events characteristic of NGSO FSS interference.* The links are *not* representative of links throughout the U.S., but rather reflect availabilities and margins of certain types of links generally confined to limited geographic areas. If

SkyBridge urges the Commission to refrain from taking any action that could threaten the underpinnings of the international agreement governing DBS/NGSO FSS coexistence. This is particularly the case here, because none of the key MVDDS proponents chose to meaningfully participate in the ITU-R process that lead to this agreement, a process that was not lacking in participation by a variety of other proponents of terrestrial systems. Northpoint, for example, intentionally declined to advance its proposals within this process,[40] ceasing its initial participation in the technical studies over a year before the WRC-2000 conference. The Commission should not permit such parties to now undermine the agreements reached in their self-imposed absence. As noted by EchoStar, this would be "a serious blow for U.S. international credibility."[41]

V. MVDDS LICENSING

In its comments, Northpoint has continued to press a series of wholly unsupported legal arguments concocted to allow it to gain access to the 12.2-12.7 GHz band by means that have repeatedly and definitely been shown by numerous parties to be in gross violation of Commission licensing rules and policies, and flatly inconsistent with

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Northpoint wants to follow the approach used for the NGSO FSS/DBS sharing studies, it must: (1) create a database of DBS links across the U.S. (including all antenna sizes used); and (2) perform the calculations in *strict* accordance with the ITU-R methodologies. To date, it has failed to follow either of these requirements. Northpoint cannot simply "cherry pick" those aspects of the DBS/NGSO FSS regulatory regime most favorable to its own situation and ignore the countervailing aspects of that regime. Here, as elsewhere, Northpoint cannot be permitted to avoid the same level of technical rigor and burden sharing required of all other systems in the 12.2-12.7 GHz band.

[40] See, e.g., SkyBridge Comments at 6, n.11.

[41] EchoStar Comments at 16.

the overall public interest.[42] SkyBridge need not belabor these points here.[43] However, a few assertions made by Northpoint, in an attempt to shore up its baseless arguments, so distort material facts and legal precedents critical to sharing in the band, that a limited response is required.

Northpoint argues that its proposal should not be considered as inviting the creation of a new service or the commencement of a processing round because Northpoint has developed technology that can share with existing services in the band,[44] and that there is, therefore, no "new spectrum" to be assigned.[45] Exactly the same argument could be made by SkyBridge regarding its pioneering NGSO FSS system, to exclude the other NGSO FSS applicants; SkyBridge, of course, has never raised that argument.[46]

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[42] See, e.g., Comments of SkyBridge L.L.C. on "Ex Parte Submission of Northpoint Technology, Ltd. and Broadwave USA," ET Docket No. 98-206, RM-9147, RM-9245, DA 00-1841, September 18, 2000 ("SkyBridge Sept. 18 Comments").

[43] Moreover, several parties address these arguments in detail in their arguments. See, e.g., EchoStar Comments at 23-25; DirecTV Comments at 31-34; Boeing Comments at 38-44; AT&T Comments at 3-10; NRTC Comments at 9-14.

[44] Northpoint Comments at 11-12.

[45] Northpoint Comments at 1.

[46] Northpoint also argues that only it should receive a license because it has done all the groundwork for the Commission's decision to permit MVDDS in the subject band. Northpoint Comments at 12. Again, this same argument could be made by SkyBridge. Ironically, Northpoint appears to be untroubled by the possibility that "free riders" might take advantage of the groundwork laid by SkyBridge on the satellite side, while it makes strident claims to a right to free, unfettered and exclusive access to the entire terrestrial "portion" of the band.

In essence, Northpoint seeks an ad hoc "pioneer's preference," of the very sort that the Commission attempted to implement a decade ago.[47] After a few years of, at best, uneven experience with that policy, the Commission wisely abandoned it, in part because Congress found auctions to be a preferable tool for awarding licenses.[48]

In addition, Nortpoint repeatedly argues that its patents should afford it some sort of special treatment. Most telecommunications operators have a portfolio of patents; Northpoint is not unique in this regard. More importantly, the Commission has never permitted the intellectual property rights of individual applicants to dictate important policy decisions or the contents of Commission rules, particularly where a patent holder attempts to use its rights to preclude competition.[49] Northpoint's arguments

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[47] However, as noted by AT&T in its comments, even the pioneer's preference rules, when they were in force, would not have provided Northpoint licenses on the terms it seeks. First, a pioneer's preference was not granted unless there was sufficient spectrum to permit at least one additional license to be granted for the same service in the same geographic area. Northpoint seeks the entire 500 MHz available in every market. Second, during the brief period in which pioneer preferences permitted certain applicants to escape the rigors of an auction, the recipient of a pioneer's preference was required to pay for its license based on bids for comparable licenses. See AT&T Comments at 8; 47 U.S.C. § 309(j)(13); Establishment of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services, 8 FCC Rcd. 1659, ¶ 2, n.4 (1993).

[48] See Pub. L. 105-33, 111 Stat.251 (1997); Dismissal of All Pending Pioneer's Preference Requests, 12 FCC Rcd. 14006 at ¶ 3 (1997). It seems that Northpoint, and its consultant, Dr. Hazlett, are either unaware of this history or choose to ignore it because it is inconvenient to their case. Put simply, Dr. Hazlett's economic theories notwithstanding, history has demonstrated that pioneer's preferences of the sort demanded by Northpoint do not serve the public interest very well. Additional factual errors in Dr. Hazlett's theory of this case are discussed infra.

[49] See Comments of Boeing at 40-44. Moreover, in this case, a variety of other parties have either submitted applications or made proposals for MVDDS systems that are very different from that proposed by Northpoint. The Commission is in no position to determine what aspects are and are not covered by a Northpoint patent, much less the underlying validity of any of the Northpoint intellectual property.

that the Commission is somehow failing to reward ingenuity by not immediately granting it exclusive terrestrial rights to the band,[50] or that a spectrum auction would constitute a government taking of Northpoint property,[51] must be dismissed out of hand.[52]

In its comments, Northpoint makes the blatantly inconsistent arguments that its domestic terrestrial system should be authorized pursuant to the existing

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[50] Northpoint Comments at 9.

[51] Northpoint Comments at 2, 8.

[52] The same is true of the related arguments made by Dr. Hazlett in his declaration filed as part of the Northpoint Comments. Dr. Hazlett characterizes as a "key consideration" that "Northpoint is distinctly responsible for creating and developing the FCC's rules permitting spectrum re-use in the 12 GHz band, and Northpoint is in this position due to having invested substantial sums in proving its technology and negotiating spectrum sharing with other users." First, with the possible exception of its letter agreement with Virtual Geo, Northpoint has not yet negotiated a spectrum sharing agreement with anyone. Moreover, under Dr. Hazlett's theory, SkyBridge should be licensed immediately and exclusively for its successful efforts with, inter alia, the GSO FSS, DBS and FS communities.

More troubling, however, is that certain of Dr. Hazlett's factual claims are quite misleading. For instance, Dr. Hazlett claims that other parties that have, in essence, found ways to enhance the efficiency of an existing band of spectrum have not had to participate in an auction in order to implement these new technologies, citing, inter alia, the Commission's decisions to permit MMDS licensees to initiate two-way, digital broadband services, and to permit PCS operators to offer fixed services. See Northpoint Comments, Hazlett Declaration at ¶ 19. What Dr. Hazlett apparently failed to appreciate is that: (1) the MMDS and PCS licensees in those cases were incumbent licensees (Northpoint is not); and (2) the regional licenses held by those incumbent licensees had been awarded by auction. In another instance cited by Dr. Hazlett -- the 1988 liberalization of the cellular rules to permit the use of digital technology -- incumbent licensees again were involved, and Congress had not yet enacted the 1993 Omnibus Budget Reconciliation Act establishing the Commission's auction authority. A similar error appears in the text of the Northpoint Comments, at 10, citing the 1991 waivers granted to FleetCall (Nextel). The Commission had no auction authority at that time, and FleetCall had purchased the facilities in question from incumbent operators. It is worth noting that since then, the Commission has auctioned off additional SMR licenses. In short, the Commission's precedents do not support either Dr. Hazlett's economic theories or Northpoint's somewhat skewed view of history.

allocation for terrestrial Fixed Service in the band,[53] yet should be governed by rules and policies applicable to global satellite systems.[54] Northpoint cannot have it both ways.

Assuming the Commission does not reverse its decision, it has permitted MVDDS to enter the band solely on the basis of an existing allocation in the band for terrestrial systems. The only reason Northpoint provides in support of its argument that its system should be treated under rules governing global satellite systems is that it spent more time lobbying the International Bureau regarding whether its system will interfere with satellite systems than lobbying the Wireless Telecommunications Bureau on the numerous licensing issues raised by its proposals. Northpoint's decision as to how to

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[53] Northpoint Comments at 4. ("The Commission should promptly issue waivers to permit terrestrial, point-to-multipoint video services under the existing allocation for fixed services in the 12 GHz band.")

[54] Northpoint Comments at 14. ("[T]he auction the Commission is considering would . . . run afoul of various provisions of federal law that prevent the auctioning of satellite spectrum. . . "). More specifically, Northpoint urges the application of the ORBIT Act to its system, which prohibits the Commission from auctioning spectrum for international or global satellite communications services. Id. However, putting aside that the Orbit Act, by its terms, applies only to *international or global satellite* systems, the policy rationale for the legislation -- the impracticability of ever implementing a global satellite system subject to auctions in each of the countries served by the system -- utterly fails to apply to Northpoint's domestic system. See SkyBridge Sept. 18 Comments at 10-11. Moreover, Northpoint's argument that the NGSO FSS allocation in the band somehow proves its applicability to terrestrial systems is irrational. NGSO FSS systems *are* global satellite systems, and moreover, there is no mutual exclusivity with respect to such systems, which can operate on a co-frequency, co-coverage basis so long as each licensee accepts an equitable portion of the burden entailed by such sharing. Northpoint has yet to demonstrate that it can do the same vis-a-vis either DBS or NGSO systems, let alone other MVDDS systems. In other words, Northpoint's system is a terrestrial system, and, given Northpoint's demand for the full band in all U.S. markets, mutual exclusivity exists.

best advance its position does not convert its domestic terrestrial system into a global satellite system.[55]

Northpoint argues that the NGSO FSS and MVDDS licenses must be processed in tandem, in view of their co-primary status.[56] This argument has no merit whatsoever. As discussed above, co-primary status only has practical meaning if rules are in place that adequately protect both affected services, no matter when the individual licensed systems are implemented.[57] Assuming this requirement is met, there is simply no rational reason to link Commission proceedings on that basis. Indeed, the proposed NGSO FSS systems are co-primary with DBS systems, which have been operational for years. Moreover, as clearly reflected in the NPRM in this proceeding, NGSO FSS and

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[55] See Northpoint Comments at 12-13. Northpoint accuses the Commission of engaging in a "bait-and-switch," by "entic[ing] [Northpoint] into the store and engag[ing] them at length through the IB office sales force, then steer[ing] them at the last moment . . . to a different department, different product, and different price." Id. at 13. Northpoint's effort to paint itself as a naive party, victimized by Commission staff, is at odds with the scope and caliber of its government and public relations campaign. Given how clear and unambiguous Commission rules and precedent are in this regard, it is hardly conceivable that Northpoint and its team of lawyers and advisors did not anticipate the various complexities of the licensing process that all other applicants routinely face.

Moreover, if any "bait-and-switch" has occurred in this proceeding, it involves Northpoint's prior use of the word "typical" to characterize its 12.5 dBm power level. See supra at note 28 and accompanying text.

[56] Northpoint Comments at 12-13.

[57] Even if that were not the case, a delay in MVDDS licensing relative to NGSO FSS licensing will not necessarily constitute a detriment to MVDDS operators, whose local terrestrial systems can generally be deployed significantly faster than global satellite systems.

MVDDS systems are at very different levels of technical and regulatory maturity, and there is no reason to place them on the same track.[58]

In sum, there is no legal, factual or policy predicate to support Northpoint's claim that its MVDDS applications (and the associated allocation and regulatory scheme) must be tied, procedurally and chronologically, to the pending applications (and associated allocation and regulations) for NGSO FSS system licenses. In addition, neither the ORBIT Act nor the Commission's November 1998 Public Notice establishing a cut-off date for Ku-band NGSO FSS applications in any way prevents the Commission from seeking additional MVDDS applications, and, if need be, awarding them by auction.[59] Finally, as SkyBridge most recently demonstrated in its Petition for Reconsideration of the MVDDS decision in the Report & Order, there is no basis for Northpoint's claim that the Satellite Home Viewer Improvement Act in any way compels the Commission to immediately award licenses to Northpoint.[60]

CONCLUSION

As demonstrated in the SkyBridge Comments, the NGSO FSS/MVDDS "sharing" rules proposed by the Commission in the Further Notice are grossly discriminatory in favor of MVDDS systems, and violate the strict standards and burdens

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[58] SkyBridge Sept. 18 Comments at 5-7; SkyBridge Petition at 4.

[59] Northpoint's arguments on this issue simply ignore a host of fundamental flaws in its theory regarding the scope and impact of the International Bureau's satellite "cut-off" Public Notice. For example, Northpoint has never explained how, under the rather precise delegation of authority pursuant to which the Bureau was acting, see 47 C.F.R. § 0.261, it lawfully could have expanded (implicitly or explicitly) the Public Notice to include terrestrial microwave systems such as MVDDS systems. See generally SkyBridge Sept. 18 Comments at 3-5.

[60] SkyBridge Petition at 10-17.

of technical proof that the Commission imposed on NGSO FSS systems in reaching a consensus for coexistence with DBS systems. The proposals set out in the Further Notice are based on false assumptions, are fraught with factual errors and regulatory inconsistencies, and are simply unworkable as a means for permitting equitable sharing between NGSO FSS and MVDDS systems. No party has provided any substantive evidence to the contrary.

On the other hand, the rules that have been proposed by SkyBridge would adequately protect both NGSO FSS and MVDDS systems, without imposing unnecessary or debilitating burdens on either service, consistent with their co-primary status. Moreover, they can be implemented and enforced through a simple regulatory regime and efficient implementation procedures. Therefore, in the event that the Commission maintains its decision to permit MVDDS entry into the 12.2-12.7 GHz band, SkyBridge urges the Commission to adopt the SkyBridge Proposal on NGSO/MVDDS sharing.

Respectfully submitted,

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